

Application No. 09/702,218
Amendment dated November 13, 2003
Reply to Office Action of July 21, 2003

REMARKS/ARGUMENTS

In the drawings, Figs. 6 and 7A are being corrected. In Fig. 6, the reference numeral "606" for the first LNB has been corrected to "604". The same change has also been made in Fig. 7A. For support, see for example, page 9, line 30 and page 10, lines 9 and 10. In Fig. 6, the baseline antenna sensitivity pattern is already (correctly) labeled as "606".

Claims 1-30 are pending in this application and have been examined. Claims 7,8, 12-14, 22, 23, 31 and 32 are objected-to as being dependent on a rejected base claim but the Examiner has indicated that these claims will be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Accordingly these claims have been herein rewritten and should now be allowable. Also some of these claims have been amended to recite "the orbit is" instead of "the satellite orbits are" to improve form and readability. These are considered to be cosmetic changes and are not narrowing amendments. The words "plurality of" have been inserted before "satellites" in claims 27-30 to improve clarity. These changes are also considered to be cosmetic changes and not narrowing amendments.

Claims 1-6, 9, 15-21 and 24-30 are being rejected under 35 U.S.C. 102(e) as being anticipated by Porcelli et al. (U.S.Patent No. 6,333,924, hereinafter referred to as the "Porcelli patent").

The Porcelli patent neither teaches nor suggests a satellite system with a plurality of satellites, each satellite in an inclined, elliptical, geosynchronous orbit, each satellite providing a portion of time of the at least near continuous broadcast service to the terrestrial receiver, wherein the plurality of satellites augments at least one legacy satellite in a geostationary orbit, as presently recited in Claim 1. Claim 1 has been herein amended to more particularly recite that "the plurality of satellites augments at least one legacy satellite in a geostationary orbit". For support, see for example, page 5, lines 19-29. As discussed in the specification, by augmenting the satellites in geostationary

Application No. 09/702,218
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orbits, the present system can provide additional bandwidth to nearly any broadcast service provided by the satellites in geostationary orbits. Thus the integrated system allows the antennae, converters and set top boxes used by current geostationary orbit satellites to be used to provide additional capacity without interference. In DBS systems, such an augmented system provides a system and method for providing high bandwidth DBS services that augment current DBS systems in a non-interfering way.

The Porcelli patent merely describes a satellite broadcast and communication system employing a constellation of satellites in highly elliptical and highly inclined orbits and does not teach or suggest augmentation of the legacy geostationary satellites. Secondary considerations of non-obviousness include the long-felt need for additional spectrum and channels and a system and method for providing high bandwidth DBS services that augment current DBS systems in a non-interfering way as discussed in the Related Art section of the specification. The system and method of the present claims addresses this long-felt need.

Claims 16 and 24 have also been herein amended in a manner similar to Claim 1 to more particularly clarify these aspects. Arguments made above with respect to Claim 1 also generally apply to Claims 16 and 24 and to claims 2-6 that depend directly or indirectly from Claim 1, claims 17-21 that depend directly or indirectly from Claim 16 and claims 25-30 that depend directly or indirectly from Claim 24.

Claim 9 has been rejected. Allegedly, the Porcelli patent discloses disclosing "that an antenna having a sensitivity characteristic substantially corresponding to the track of the apparent position of each of the satellites (Fig. 1-3 and column 5, lines 65-column 7, lines 41)".

Applicant respectfully disagrees. In the text pointed to by the Examiner, the Porcelli patent, mentions that "One of the two criteria for the selection of eccentricity is to minimize the longitudinal and latitudinal excursions of the ground track in the operational arc (loop) of the orbit. This ensures that, while the satellite transits through the operational portion of the orbit, the

Application No. 09/702,218
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satellite appears nearly stationary relatively to any ground location within the coverage area, thus allowing a fixed antenna terminal to receive communications from the satellite" (see col. 6, lines 25-33). However, the Porcelli patent does not teach or suggest an "an antenna having a sensitivity characteristic substantially corresponding to the track of the apparent position of each of the satellites".

Figs. 1-3 pointed out by the Examiner do not illustrate the sensitivity pattern of the receiver antenna. In the present application, see for example, Fig. 6 and, more particularly, the second antenna sensitivity pattern 612 which is non-symmetric and covers the movement of the plurality of satellites in inclined, elliptical, geosynchronous orbits in the augmenting system when each of these satellites is in the active period. Also see Fig. 7B that illustrates the reverse teardrop sensitivity pattern of the receiver station antenna in accordance with Claim 9. The Porcelli patent neither teaches nor suggests the receiver station antenna recited in Claim 9. Matching the sensitivity pattern of the antenna with the apparent motion of the active satellite enables the receiver station antenna to communicate with the satellite without having to track it. The Porcelli patent, on the other hand mentions that due to "larger excursions in the sky above the service area, for the 3-satellite system, minimal tracking mechanisms (single-axis) may be required for narrow-beam antennas" (see col. 6, lines 51-54).

Claims 10,11 and 15 that depend directly or indirectly from Claim 9 are also distinguishable from the Porcelli patent for generally the same reasons discussed above in connection with Claim 9 and further due to the additional limitations recited therein.

Claims 10 and 11 are also rejected under 35 U.S.C. §103(a) as being unpatentable over Porcelli in view of Maeda et al. (U.S. Patent No. 6,422,516, hereinafter referred to as the "Maeda patent").

The Examiner admits that the Porcelli patent does not specifically disclose the limitation "the receiver antenna comprises a reflector having a focal line and a focal point on the focal line and a head, wherein the head is

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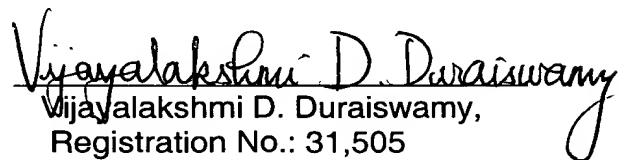
disposed offset from the focal point". However, the Examiner points to column 4, line 17-column 5, line 16 and Figs. 5 and 6 of the Maeda patent and alleges that it discloses this limitation. Applicant disagrees. The Maeda patent does not appear to disclose this limitation and the sections identified by the Examiner neither teach nor suggest the claimed limitation. These sections and figures appear to relate to satellite orbits and orbit-related parameters defining the shape of the orbit and not to antenna structure. Therefore, the Maeda patent does not cure the deficiencies in the teachings of the Porcelli patent and Claims 10 and 11 are allowable over these two references, whether they are considered singly or in combination.

New claims 33-52, fully supported by the original specification, are herein presented to more particularly claim various aspects of a receiver station, add-on antenna and the augmented satellite system.

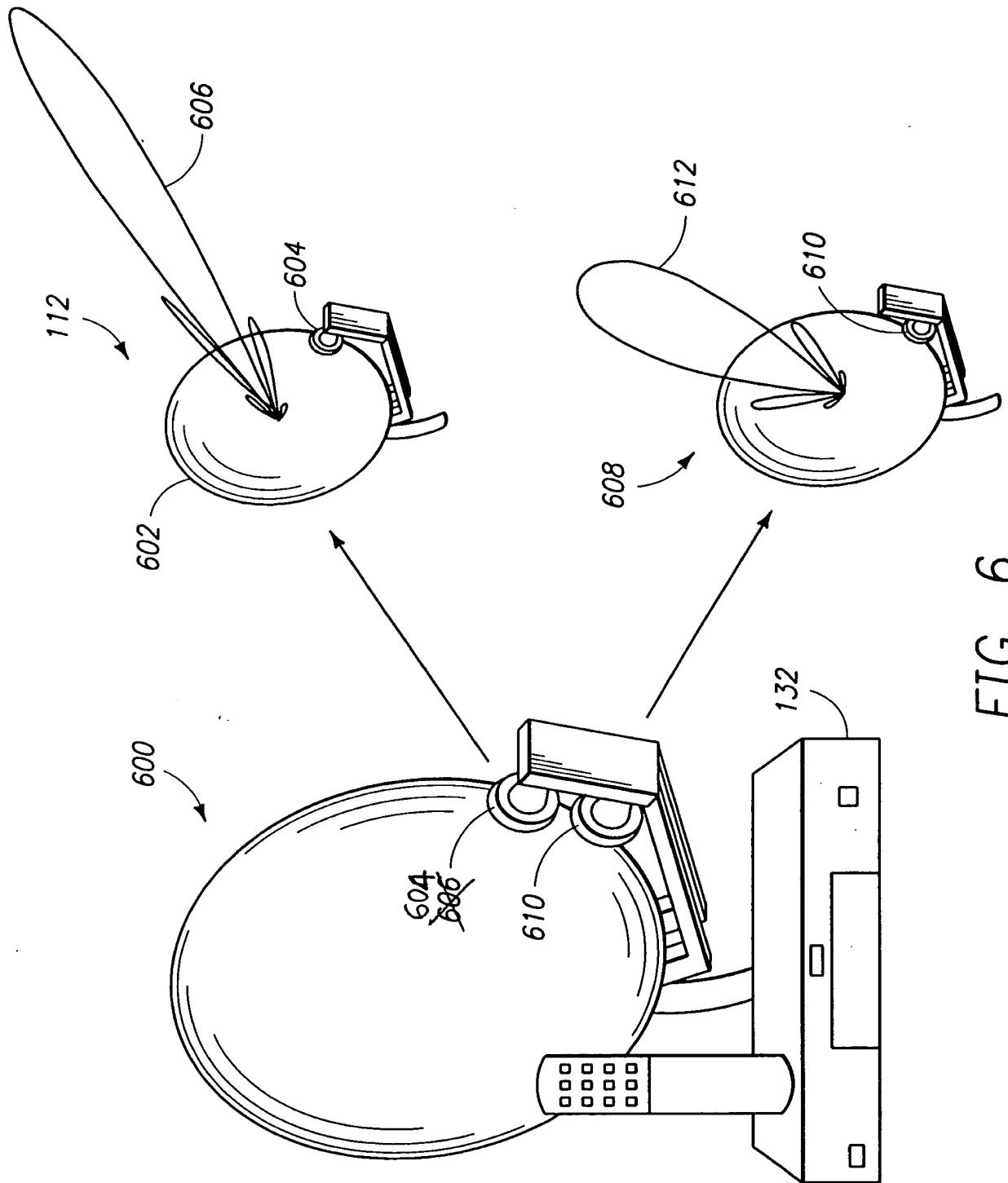
In view of the foregoing amendments and remarks, it is respectfully submitted that all of the claims presently pending in this application are allowable. Entry of this amendment, reconsideration of the rejections, examination of the new claims, approval of the drawing corrections, entry of the replacement sheets and allowance are respectfully requested.

If a telephone interview will advance the prosecution of this application, the Examiner is requested to call the undersigned attorney at the below-listed number.

Respectfully submitted,


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Ku Cast Ground Terminal
 $F_Q = 12.45$ GHz, 2.5" feed
 PEAK $PERF(S) = 1)$ 25.54 2) 25.54

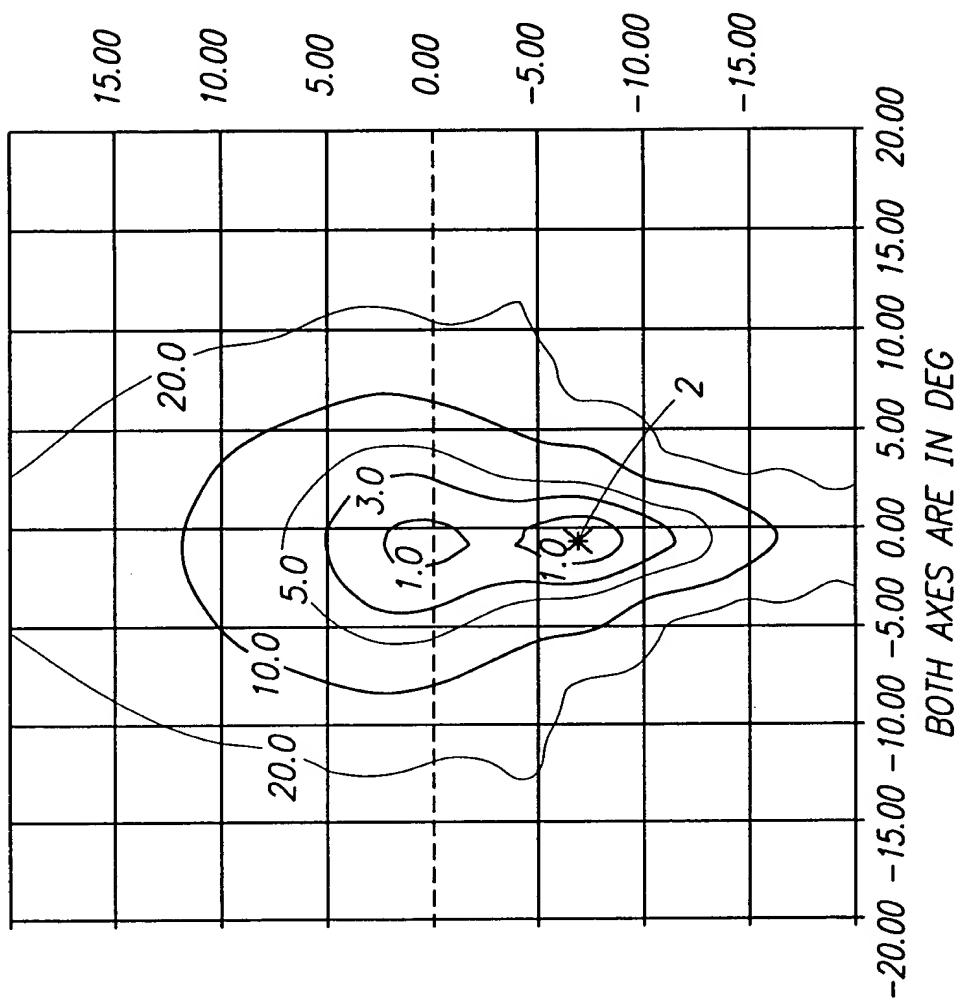


FIG. 7A

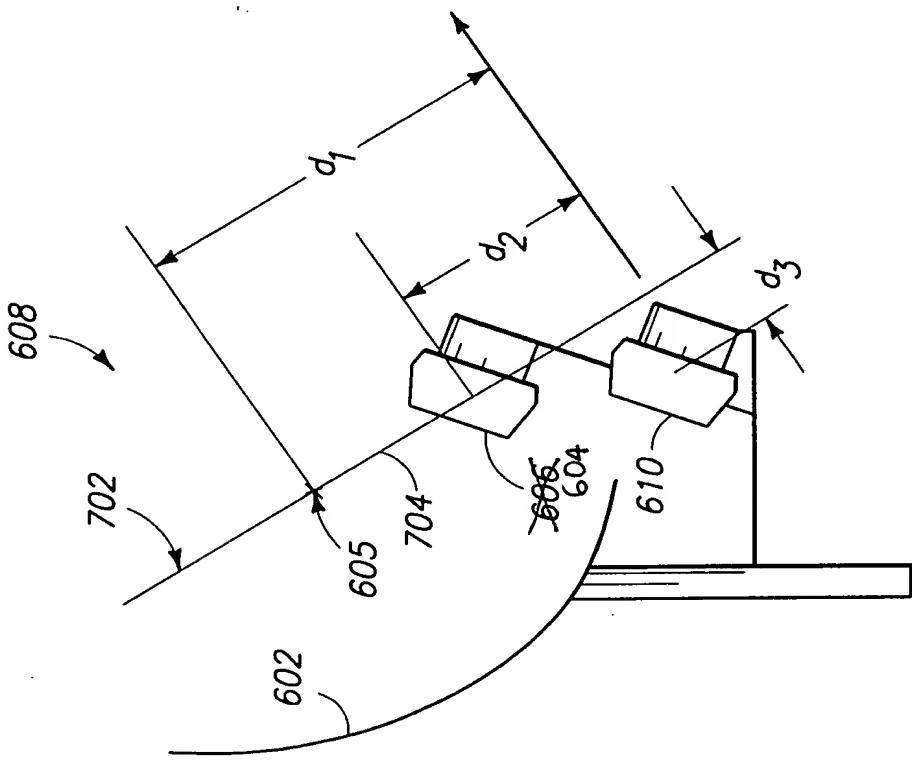


FIG. 7B